KOSTROMIN, A.I.; APARSHEVA, M.I.

Amperometric determination of cadmium. Zav.lab. 22 no.5:544-545 '56. (MLRA 9:8)

1. Kazanskiy gosudarstvennyy universitet imeni V.I. Ul'yanova-Lenina.
(Cadmium--Analysis) (Titration)

2551. The amperometric determination of lead, copper and zinc. A. I. Kostromin. *Uch. Zap. Kazansk. Univ.*, 1956, **116** (1), 179–182; *Ref. Zhur. Khim.*, 1956, Abstr. No. 71 054.—Anthranilic acid is used in the amperometric determination of small quantities of Pb, Cu and Zn. The normal visual apparatus, with a dropping-mercury electrode and mirror galvanometer, is used. As a background soln. for Cu and Pb, Na acetate and $NaNO_3$ are used, and for Zn, only $NaNO_3$. The titration of Pb and Cu may be carried out at pH 3·0 to 7·0 and of Zn at pH 4·2 to 5·6. To accelerate the [illegible] of Zn about a quarter of its vol. of ethanol is added to the soln. The possibility is indicated of titrating Cu in the presence of Zn.

C. D. KOPKIN

KOSTROMIN, A.I.; BUDNIKOV, G.K.

Use of ions of phthalic acid in studying complex compounds of lead. Uch. zap. Kaz. un. 117 no.9:207-208 '57. (MIRA 13:1)

1.Kazanskiy gosudarstvennyy universitet im. V.I. Ul'yanova-Lenina. Kafedra analiticheskoy khimii.
(Lead compounds) (Phthalic acid)

KOSTROMIN, A.I.; FLEGONTOV, S.A.

Coulometric titration of iron, antimony, and tin by means of electrolytically generated permanganate ions. Zav.lab. 27 no.5:528-530 '61. (MIRA 14:5)

1. Kazanskiy gosudarstvennyy universitet imeni V. I. Ul'yanova.
(Iron--Analysis)
(Antimony--Analysis)
(Tin--Analysis)

S/032/63/029/004/002/016
A004/A127

AUTHORS: Kostromin, A.I., Akhmadeyev, M.Kh.

TITLE: Coulomb-meter determination of small Al-quantities

PERIODICAL: Zavodskaya laboratoriya, no. 4, 1963, 402 - 404

TEXT: Electrically generated bromine is used for the bromination reaction of a number of organic compounds and for the titration of some reducing agents. In their investigations, the authors used the bromination reaction of 8-hydroxyquinoline for determining aluminum. The work was carried out on an installation of which a description is given. This method is based on the formation of aluminum hydroxyquinolate and the subsequent reaction of the oxide with the bromine to be generated. There are 3 figures and 1 table.

ASSOCIATION: Kazanskiy gosudarstvenny universitet im. V.I. Ul'yanova-Lenina (Kazan' State University im. V.I. Ul'yanov-Lenin)

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ACC NR: AR6016965 SOURCE CODE: UR/0081/65/000/024/G030/G031

AUTHOR: Kostromin, A. I.; Kruglov, A. I.

TITLE: Coulometric determination of iron and aluminum impurities in selenium

SOURCE: Ref. zh. Khimiya, Abs. 24G219

REF SOURCE: Uch. zap. Kazansk. un-t, v. 124, no. 3, 1965, 173-178

TOPIC TAGS: metal chemical analysis, amperometric titration

ABSTRACT: In determining Fe and Al in Se, Fe^{2+} is determined by direct coulometric titration (CT) with electrogenerated Br_2 on a background of 0.2M KBr + 0.1 N H_2SO_4. Al is precipitated with 8-hydroxyquinoline (I), the precipitate is dissolved in acid and I is titrated with Br_2. The CT end point is determined amperometrically with 2 indicator electrodes under 200 mv potential. Background impurities are pretitrated before the CT. In determining Fe in metallic Zn the sample is dissolved in HCl (1:1), the solution is diluted to a determined volume, and an aliquot portion is titrated. In determining Fe in Se, the sample (4 - 0.1 γ Fe) is dissolved in a quartz dish in 1 - 2 ml concentrated HNO_3 and evaporated to dryness for 30-40 minutes on a molten KNO_3 (333°) bath. The residue is dissolved in 1 ml 7 N H_2SO_4, metallic zinc is added to the

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L 40731-66

ACC NR: AR6016965

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solution, and after its dissolution, the solution is diluted to a determined volume. In determining 0.04 - 0.14 γ Al in Se the latter is separated by sublimation as described above, the residue is dissolved in dilute H_2SO_4, pH is adjusted to 9.55, impurities are extracted three times with a 1% solution of sodium diethyldithiocarbaminate in $CHCl_3$, Al is extracted with benzene as a complex with I, benzene is evaporated, the residue is dissolved, and CT is carried out. V. Mirkin. [Translation of abstract].

SUB CODE: 07, 14

Card 2/2 LC

L 46711-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AR6016964 SOURCE CODE: UR/0081/65/000/024/G028/G028

AUTHOR: Kostromin, A. I.; Anisimova, L. A. 27 26 B

TITLE: Coulometric determination of beryllium microimpurities in metallic gallium 27

SOURCE: Ref. zh. Khimiya, Abs. 24G202

REF SOURCE: Uch. zap. Kazansk. un-t, v. 124, no. 3, 1965, 179-188

TOPIC TAGS: metal chemical analysis, amperometric titration, organoberyllium compound

ABSTRACT: A method is suggested for determining microgram quantities of Be by extracting a complex beryllium compound with acetylacetone (I), breaking down this complex in acid, and coulometric titration (CT) of I, which was split off by the decomposition of the complex, with electrolytically generated Br_2. The end point of the CT is determined potentiometrically by constant current, and biamperimetrically. Verification of current efficiency for the Br generating reation yields 100 + 0.5%. Inert electrolyte for CT: 0.1 N KBr and 0.1 N H_2SO_4. The Ga sample is dissolved in concentrated HNO_3 by heating on a sand bath, the solution is evaporated to 1 ml, 10 ml of 1 N solution of Complexon

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L 46711-66

ACC NR: AR6016964 O

III is added, pH is adjusted to 7-8 with 0.1 N NaOH solution, 1 ml I and 1 - 2 drops 0.1 N NaOH (pH 7-8) are added, the complex is extracted with benzene or CCl_4 for 5 - 10 minutes, and an extract is washed 4 times with 0.1 N NaOH solution and once with water. The washed extract is evaporated to dryness in a quartz dish, dissolved in 5 ml 7 N H_2SO_4, diluted to 100 ml with double distilled water and CT is carried out. In determining Be in an Al-based alloy the method differs in that the solution can be in H_2SO_4 or NaOH and extraction is conducted in CCl_4 at pH 9 in the presence of excess Complexon III to bond Al^{3+}. In determining 0.1 - 0.3 % Be the mean square error is +3%. V. Mirkin. [Translation of abstract].

SUB CODE: 07, 14

Card 2/2 fv

KOSTROMIN, A.M., inzh.

Improvement of the vibration-type power control circuit.
Elek.i tepl.tiaga no.7:18-19 Jl '60. (MIRA 13:8)
(Diesel locomotives--Electric equipment)

KOSTROMIN, A.M., inzh.

Transistorized contactless power governor of the diesel locomotive diesel generator set. Trudy MIIT no.130:65-78 '60. (MIRA 14:3)
(Diesel locomotives) (Automatic control)

S/196/62/000/004/017/023
E194/E155

AUTHORS: Rudaya, K.I., and Kostromin, A.M.

TITLE: A semiconductor contactless power controller for a diesel-electric locomotive

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.4, 1962, 5, abstract 4 L19. (Elektr. i teplovozn. tyaga, no.8, 1961, 40-41).

TEXT: Regulators in the automatic power control systems of diesel-electric locomotives have serious defects. The tachometer circuit of locomotive type ТЭ3 (TE3) assumes a considerable drop in the diesel engine speed, and has unstable characteristics because of unstable operation of the tachogenerator. The controller of diesel-electric locomotive type ТЭ10 (TE10) uses a reliable sliding rheostat. Vibration regulators have moving electrical contacts. The diesel-electric locomotive laboratory of the MIIT has developed a contactless regulator based on semiconductors which is free from these defects. One of the principal circuit components is a semiconducting triode, connected in circuit with a common emitter to ensure maximum

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S/196/62/000/004/017/023
E194/E155

A semiconductor contactless power ...

amplification of the current and power control signals. A circuit diagram for use with transistor type ГТ4Г (P4G) and its static characteristic are given, and also the schematic diagram of a new regulator including the method of connecting it into the generator field circuit ВГ of a diesel-electric locomotive (see circuit diagram). The triode П is connected in circuit with a common emitter in the independent field winding circuit H-HH of the exciter B and acts as a variable resistance, the value of which depends on the signal ΔE at the output from the convertor UП. This convertor has a solenoid-type armature with windings in transformer connection and is mechanically connected to the shaft of the servo-motor of the regulator which runs at the diesel engine speed and it is supplied at a voltage u. A rectifier bridge B is connected between the convertor and the triode. Displacement of the shaft, and with it the armature, causes a corresponding voltage change ΔE at the convertor output. This alters the control $I_б$ and commutator $I_к$ currents of the triode П, of the exciter and generator fields. As a result the generator output is made to correspond

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with the diesel output at a given shaft speed. The interlocking BB' disconnects the controller on opening the contactor BB, if, for example, the locomotive wheels are slipping or if there is an earth fault in the power circuits. The resistance R3 ensures that all the accumulators are uniformly charged. Moreover, the circuit contains further resistances R1 and R2. Operation of the controller is described in application to a diesel-electric locomotive type TE3. The regulator was tested in the institute's laboratory on a diesel-generator set from this locomotive. The experimental data are used to construct curves of generator output, of current in the independent winding of the exciter and of triode commutator current as a function of the main generator current both with and without the regulator. The regulator is reliable in service and is notable for accurate control, simplicity of adjustment and cheapness. It can be installed on existing locomotives without many modifications.

[Abstractor's note: Complete translation.]

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KOSTROMIN, A.M., inzh.

Studying the dynamics of the diesel-generator unit of a diesel locomotive. Trudy MIIT no.141:157-176 '61. (MIRA 15:2)
(Diesel locomotive)
(Automatic control)

KOSTROMIN, A.M., inzh.

Control of the diesel-generator unit of a diesel locomotive.
Trudy MIIT no.141:177-188 '61. (MIRA 15:2)
(Diesel locomotives)
(Automatic control)

RUDAYA, K.I., dotsent; KOSTROMIN, A.M., inzh.; LISITSYN, Ye.V., inzh.

Studying the performance of contactless regulators. Trudy MIIT no.151:135-152 '62. (MIRA 16:2)
(Diesel locomotives) (Electric controllers)

RUDAYA, K.I., dotsent; LISITSYN, Ye.V., inzh.; KOSTROMIN, A.M., inzh.

System for the additional regulation of the diesel generator plant of diesel locomotives with the use of semiconductors. (MIRA 17:6)
Trudy MIIT no.169:106-114 '63.

KOZLOV, V.A., inzhener; KOSTROMIN, A.N., inzhener.

Experience with designing and erecting control posts for rolling mills. Stroi.prom. 34 no.4:18-22 Ap '56. (MLRA 9:8)

1. Kiyevskoye otdeleniye Promstroyproyekta.
(Rolling mills)

SUVOROV, B.V.; RAFIKOV, S.R.; ZHUBANOV, B.A.; KOSTROMIN, A.S.; KUDINOVA, V.S.; KAGARLITSKIY, A.D.; KHMURA, M.I.

Catalytic synthesis of the dinitrile of terephthalic acid. Zhur. prikl. khim. 36 no.8:1837-1847 Ag '63. (MIRA 16:11)

KAGARLITSKIY, A.D.; SUVOROV, B.V.; RAFIKOV, S.R.; KOSTROMIN, A.S.

Catalytic synthesis of benzonitrile by means of the oxidative ammonolysis of aromatic compounds. Zhur. prikl. khim. 36 no.8:1848-1852 Ag '63. (MIRA 16:11)

KOSTROMIN, A.S.; KUDINOVA, V.S.; RAFIKOV, S.R.; SUVOROV, B.V.; KHMURA, M.I.

Oxidation of organic compounds. Report No. 20: Effect of water addition on catalytic oxidation of aromatic compounds in the gaseous phase. Izv.AN Kazakh.SSR.Ser.khim. no.2:56-61 '59. (MIRA 12:8)

(Aromatic compounds) (Oxidation)

KOSTRUMIN, A.S.

5(1,3) SOV/153-2-4-27/32

AUTHORS: Suvorov, B. V., Rafikov, S. R., Khmura, M. I., Kudinova, V. S., Kostromin, A. S.

TITLE: Direct Synthesis of Dinitriles of the Aromatic Sequence From Dialkyl Benzenes and Terpene Hydrocarbons

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959, Vol 2, Nr 4, pp 614 - 618 (USSR)

ABSTRACT: Aromatic dinitriles are promising raw materials for the production of phthalic acids and diamines of the aliphatic-aromatic and alicyclic sequence. These again are the initial products for the production of polyesters and polyamides (Ref 1). The latter, however, can be directly obtained from dinitriles by their interaction with secondary and tertiary highly molecular alcohols (Ref 2). Hence the great interest in the new ways of producing dinitriles of various structures. After giving a survey of publications (Refs 3,4) the authors state that they have been dealing with the catalytic ammonolysis of organic compounds for years (Refs 5-7). With regard to their task of synthesizing dinitriles they pay special attention to the ammonolysis of dialkyl benzenes especially in the presence of air. The apparatus

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used for this purpose is filled with a granulated catalyst. Mixed catalysts of oxides of vanadium, tin, titanium, and some other elements with varying valence proved to be most effective. p-Xylene is the most accessible and promising raw material in the synthesis of dinitrile of terephthalic acid. Hence its transformations were investigated most thoroughly. Figure 1 shows the qualitative composition and the quantitative conditions of the reaction products of a characteristic experimental series. Hence it appears that oxidative ammonolysis yields a very complicated scale of substances. The main products, however, are the dinitrile and p-tolunitrile required. The composition of the reaction products greatly depends on the reaction conditions. The process can be directed to the special formation of any product by the choice of the respective reaction products. The structure of the initial product is also of importance. In addition to p-xylene, other p-dialkyl benzenes as well as hydroaromatic and terpene hydrocarbons underwent the reaction mentioned. All of them yielded terephthalic-acid dinitrile, and may thus be considered a source of reserve raw materials. Dinitriles of isophthalic and o-phthalic acid are

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very interesting. In addition to xylylene diamines (for the production of high-melting, fiber-forming polyamides), other valuable compounds can be obtained: orthoisomer (for phthalocyanine dyes (Ref 9), for refractory varnishes and glasses). Their yield exceeded 90%. The ammonolysis mentioned can also take place without oxygen (Ref 3), but the yield of dinitriles remains small (5-10%) (Fig 2). Aromatic aldehydes and acids react readily with ammonia under similar conditions and give nitrile yields close to theoretical ones (Ref 10). A report on the above paper was given at the All-Union Conference on "Synthesis of Initial Products for the Production of High Polymers" which took place in [illegible]avl' from September 29 to October 2, 1958. There are 2 figures and 11 references, 8 of which are Soviet.

ASSOCIATION: Institut khimicheskikh nauk AN KazSSR (Institute of Chemical Sciences of the Academy of Sciences, Kazakh SSR)

Card 3/3

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825230001-0"

TENENBAUM, M.M., kand.tekhn.nauk; KOSTROMIN, A.Ye., inzh.; ROMANENKO, N.K., inzh.; YANOVSKIY, I.I., inzh.

Thermal conditions of the performance of bits of cutting machines and coal combines. Vest.mash. 40 no.4:11-14 Ap '60. (MIRA 13:6)
(Coal mining machinery) (Thermal stresses)

KOSTROMIN, E.

Stand for testing electric drills under load. Mast.ugl. 6 no.10:14-15 O '57. (MIRA 10:12)
(Electric instruments--Testing)
(Coal mines and mining--Equipment and supplies)

KOSTROMIN, N.

Device for the distruction of misfired charges. Mast. ugl. no.10: 15 O '59. (MIRA 13:3)
(Blasting--Safety measures)

KOSTROMIN, F. P.

"Drilling Geometrically Correct Hexagonal Holes" Stanki i Instrument, 10, No. 3, 1939, Docent

Report U-1505, 4 Oct 1951.

KOSTROMIN., F. P. and BOLOTIN, KH. L.

Kostruirovanie stanochnykh prisposoblenii, Pod red. A. I. Kashirina. Izd. 2. Moskva, Mashgiz, 1946. 278 p.

DLC: Unclass.

(Designing of machine-tool devices.)

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

BOLOTIN, Kh. L. and KOSTROMIN, F. P.

Osnovy Konstruirovaniia Prisposoblenii (Machine Tool Detail Arrangements), 208 p., Moscow, 1951.

KOSTROMIN, F. P.

Vorrichtungen fur die Zerspanung; von Ch. L. Bolotin und R. P. Kostromin. 3 Aufl. Berlin, Tecknik, 1953. 522 p. diagrs. Translation from the Russian: "Osnovy konstruorovaniya prisposobleniy", Moscow, 1951. "Literatur-und Quellenanben": p. 488

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662.3
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1953

BOLOTIN, Khonon Leybovich, kandidat tekhnicheskikh nauk, dotsent; KOSTROMIN, Fedor Prokop'yevich, kandidat tekhnicheskikh nauk, dotsent; KUNIN, P.A., inzhener, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor

[Machine-tool attachements; design and calculations] Stanochnye prisposobleniia; konstruirovanie i raschet. Izd. 4-oe, perer. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 315 p. (MLRA 9:11)
(Machine tools--Attachments)

BOLOTIN, Khonon Leybovich; dotsent, kand.tekhn.nauk; KOSTROMIN, Fedor Prokop'yevich, dotsent, kand.tekhn.nauk; KUNIN, P.A., inzh., red.; UVAROVA, A.F., tekhn.red.

[Machine-tool attachments; design and construction] Stanochnye prisposobleniia; konstruirovanie i raschet. Izd.4., perer. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 399 p. (MIRA 13:5)
(Machine tools--Attachments)

ABAKUMOV, Mikhail Mitrofanovich; KOSTROMIN, F.P., kand.tekhn.nauk, retsenzent; LESNICHENKO, I.I., red.izd-va; CHERNOVA, Z.I., tekhn.red.

[Recent machine-tool attachments] Sovremennye stanochnye prisposobleniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1960. 326 p. (MIRA 13:7)
(Machine tools--Attachments)

KUZNETSOV, Yuriy Ivanovich; KOSTROMIN, F.P., kand. tekhn. nauk, retsenzent; MOROZOVA, M.N., inzh., red.; SMIRNOVA, G.V., tekhn. red.

[Machine-tool attachments with high-speed manual clamps] Stanochnye prisposobleniia s bystrodeistvuiushchimi ruchnymi zazhimami. Moskva, Mashgiz, 1961. 47 p. (MIRA 15:1)
(Machine tools—Attachments)

KRUPENIN, Zinoviy Abramovich; KOSOVSKIY, Volya L'vovich; SOKOLOVA, V.Ye., inzh., ved. red.; KOSTROMIN, F.P., kand. tekhn. nauk, red.; SOROKINA, T.M., tekhn. red.

[High-production attachments for machining on lathes]Vysokoproizvoditel'nye prisposobleniia dlia tokarnykh rabot. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 51 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 10. No.M-58-277/42) (MIRA 16:2)

(Lathes--Attachments)

VOLOSATOV, Viktor Alekseyevich; KOVALEV, A.M., inzh., ved. red.; KOSTROMIN, F.P., kand.tekhn. nauk, red.; PONOMAREV, V.A., tekhn. red.

[Universal pneumatic attachments for turret and turning lathes] Universal'nye pnevmaticheskie prisposobleniia k revol'vernym i tokarnym stankam. Moskva, Filial Vses.in-ta nauchn. i tekhn. informatsii, 1958. 22 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 10. No.M-58-145/26) (MIRA 16:3)
(Lathes--Attachments)

KOSTROMIN S.

ALEKSANDROV, A., professor; KOSTROMIN, G., professor; ZHEVTYAK, P., dotsent;

Money circulation planning. Den.i kred. 15 no.3:32-36 Mr '57.
(MLRA 10:5)

(Banks and banking)

KOSTROMIN, Georgiy Ivanovich, prof.; LARIONOV, K.A., prof., otv. red.; [redacted], red.izd-va; TELEGINA, T., tekhn. red.

[National economic significance of financial planning] Narodnokhoziaistvennoe znachenie finansovogo planirovaniia. Moskva, Gosfinizdat, 1963. 94 p. (MIRA 16:9)
(Finance)

KOSTROMIN, Georgiy Ivanovich, prof.; LARICHEV, K.A., prof., otv. red.

[The national economic significance of financial planning] Narodnokhoziaistvennoe znachenie finansovogo planirovaniia. Moskva, Gosfinizdat, 1963. 94 p. (MIRA 17:8)

L 19433-63 EWT(d)/EWT(1)/FCC(w)/BDS AFFTC/ASD/IJP(C)
ACCESSION NR: AR3005390 S/0044/63/000/006/V015/V015

56

SOURCE: RZh. Matematika, Abs. 6V56

AUTHOR: Kostromin, G. Ya.

TITLE: On the time of emergence of a stray particle onto a boundary

CITED SOURCE: Uch. zap. Kazansk. un-t, v. 122, no. 4, 1962, 65-73

TOPIC TAGS: stray particle

TRANSLATION: The following expression was obtained for the mathematical expectation M(p,q) of the number of steps required for the emergence of a stray particle from a point (p,q) onto the boundary of a square:

$$M(p,q) = -\frac{2}{n^2}\sum_{r=1}^{n-1}\sum_{k=1}^{n-1}\frac{\left[\sin\frac{r\pi q}{n}\sin\frac{k\pi p}{n} + \sin\frac{rp\pi}{n}\sin\frac{k\pi q}{n}\right]}{\cos k\pi \sin\frac{r\pi}{2n}} \times$$
$$\times \sin\frac{r\pi}{2}\sin\frac{(n-1)r\pi}{2n}\sin\frac{k\pi}{n}\sin^2\frac{k\pi}{2} \times$$
$$\times\left[1-\frac{\cos\frac{k\pi}{n}+\cos\frac{r\pi}{n}}{2}\right]^{-1}.$$

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0

where n = a/h, a is the side of the square, h is the interval of the square grid, and the summation is carried out only over odd r and k. The author notes that this formula makes it possible to analyze from above and below the mathematical expectation of the number of steps necessary for the emergence of a stray particle onto the boundary of a region different from a square if this region is not too distended. V. Saul'yev.

DATE ACQ: 24Jul63 SUB CODE: MM,PH ENCL: 00

Card 2/2

KOSTROMIN, I.

Housing construction on Sakhalin. Zhil stroi. no.6:22-23 Je '61.
(MIRA 14:7)

1. Glavnyy inzh. proyekta Sakhalingiproproma.
(Sakhalin--Apartment houses)

KOSTROMIN, Ivan Andreyevich; SELEZNEV, N.G., red.; PULIN, L.I., tekhn. red.

[Labor costs are being reduced] Zatraty truda snizhaiutsia. Tula, Tul'skoe knizhnoe izd-vo, 1960. 11 p. (MIRA 14:10)

1. Glavnyy agronom Sasovskoy rayonnoy inspektsii po sel'skomu khozyaystvu Ryazanskoy oblasti (for Kostromin).
(Sugar beets)

KOSTROMIN, I.F., plotnik.

Tool for cutting tar paper and pergamyn. Na stroi. Mosk. 1 no.3: 23 Mr '58. (MIRA 11:8)

1. Trest Mosstroy No.19.
(Building--Tools and implements)

KOSTROMIN, K. A., Cand Tech Sci -- "Low-pressure head dams of the block type." Len, 1961. (Min of Higher and Sec Spec Ed RSFSR. Len Order of Lenin Forest Eng Acad im S. M. Kirov)
(KL, 8-61, 245)

KOSTROMIN, K.O.

20(1) PHASE I BOOK EXPLOITATION SOV/2775

Akademiya nauk Ukrayins'koyi RSR. Instytut matematyky

Zastosuvannya metodu elektrohidrodynamichnykh analohiy do rozv"yazannya deyakykh tekhnichnykh zadach (Application of the Method of Electrohydrodynamic Analogy to the Solution of Various Engineering Problems) Kyyiv, Vyd-vo AN URSR, 1959. 160 p. 1,000 copies printed.

Ed. of Publishing House: T.K. Remenník; Tech. Ed.: O.O. Matviychuk; Editorial Board: P.F. Fil'chakov (Resp. Ed.), V.M. Ostapenko (Resp. Secretary), Yu.V. Blahoveshchens'kyy, Y.B. Pohrebys'kyy, and V.E. Shamans'kyy.

PURPOSE: This book is intended for scientific workers, engineers, Aspirants and students.

COVERAGE: This book is a collection of articles on the application of the electrohydrodynamic analogy method to the solution of various engineering problems. Among the topics discussed is the modelling of certain technical problems on resistance paper by the electrohydrodynamic analogy method. Special attention is given to the study of various problems of filtration, in both homogeneous and nonhomogeneous ground, problems of plane bending, heat engineering problems, modelling electro-osmotic waterlevel fall, and the conformal mapping problem. Problems of the physical and technical properties of resistance paper and the accuracy of the electrohydrodynamic analogy method are studied and the new, more universal model of the EGDA integrator is described. All the articles end with summaries in Russian and English.

TABLE OF CONTENTS:

FEFELOV, A.I.; KOSTROMIN, L.A.

Apparatus for determining the velocity of fall of particles of finely dispersed materials. Zav. lab. 23 no.11:1392-1393 '57. (MIRA 11:1)

1. Ural'skiy nauchno-issledovatel'skiy khimicheskiy institut.
(Particles) (Photoelectric cells)

KOSTROMIN, N.I. DECEASED

SEE IIC

ARCHITECTURE

YEFIMOV, Ye.S.; KOSTROMIN, N.O.

Skilful organization of painting work. Stroi. pred. neft.prom. 2 no.1:23-24 Ja '57. (MLRA 10:3)
(Painting, Industrial)

KOSTROMIN, P.I.

Thoracoscopy as an early diagnostic method in artificial pneumothorax therapy. Prob.tuberk., Moskva no.2:66-67 Mr-Ap '50. (CLML 19:3)

1. Of the Lung Surgical Clinic (Head -- Candidate Medical Sciences P.I.Kostromin), Ukrainian Scientific-Research Tuberculosis Institute (Director -- A.S.Manolat; Scientific Director -- Prof. N.S.Morosovskiy).

GUBANOV, A.G., dotsent; KOSTROMIN, P.I., kandidat meditsinskikh nauk, zaveduyushchiy; MAMOLAT, A.S., direktor.

Novocaine block in intrathoracic surgery. Probl.tub. no.3:70-73 My-Je '53 (MLRA 6:7)

1. Khirurgicheskoye otdeleniye Ukrainskogo nauchno-issledovatel'skogo tuberkuleznogo instituta, Kiyev (for Gubanov and Kostromin). 2. Ukrainskiy nauchno-issledovatel'skiy tuberkuleznyy institut, Kiyev (for Mamolat).
(Chest--Surgery) (Novocaine)

KOSTROMIN, Petr Innokent'yevich; LENTINA, M., red.; POTREBICH, M., tekhn.red.

[Along taiga of the Maritime Territory] Po taezhnomu Primor'iu. Vladivostok, Primorskoe knizhnoe izd-vo, 1958. 114 p. (MIRA 12:8)
(Maritime Territory--Description and travel)

KOSTROMIN, S., polkovnik; ABUSHKEVICH, N., polkovnik; SHULEPOV, A., polkovnik; RYABOV, N., podpolkovnik

"Individual evaluation"; discussion of the article published in No. 4. Voen.vest. 43 no.7:71-74 Jl '63. (MIRA 16:11)

KOSTROMIN, S.A.

L.S.Berg and the problem of loess origin. Izv. Kir. fil. Geog. ob-va SSSR no.4:45-48 '63. (MIRA 16:12)

SOKOLOV, I., podpolkovnik; KOSTROMIN, V., kapitan

Constructing shallow water bridges on trestle bents. Voen.-inzh. zhur. 102 no.6:20-22 Je '58. (MIRA 11:6)
(Military bridges)

KOSTROMIN, V.G.; FEDOSOV, V.A.; BRODSKIY, I.S.

Model workshop. Mashinostroitel' no.8:30-32 Ag '65.
(MIRA 18:11)

KOSTROMIN, V.S., kand.tekhn.rauk, dots.

Solution of the plane problem in the theory of elasticity of anisotropic bodies. Sbor.trud.VISI no.4:59-62 '58.
(MIRA 12:8)

(Elasticity)

KOSTROMIN, V.S., kand.tekhn.nauk, dots.

Dynamics of loads acting on engineering structures. Sbor. trud.VISI no.4:118-126 '58. (MIRA 12:8)
(Dynamics)

KLEYN, Georgiy Konstantinovich, prof., doktor tekhn. nauk, prof.; REKACH, Vladimir Germanovich, doktor tekhn. nauk, prof.; ROZENBLAT, Genya Isaakovna, kand. tekhn. nauk, dots.; SMIRNOV, A.F., prof., doktor tekhn. nauk, retsenzent; KOSTROMIN, V.S., prof., retsenzent; L'VIN, Ya.B., dots., retsenzent; OSELED'KO, A.I., dots., retsenzent; BARCHENKOV, A.G., dots., retsenzent; BYCHKOV, D.V., prof., doktor tekhn. nauk, red.; KOROTKOVA, A.V., red.

[Manual for conducting lessons in a special course in structural mechanics] Rukovodstvo k provedeniiu zaniatii po spetsial'nomu kursu stroitel'noi mekhaniki. Moskva, Vysshaia shkola, 1964. 295 p. (MIRA 18:3)

Kostromin, Ye. I.

SHMAIN, M.M.; KOSTROMIN, Ye.I.

Dough distributor for swinging tray proofers. Khleb. i kond. prom. 1 no.5:7-9 My '57. (MLRA 10:6)

1. Khlebozavod-avtomat imeni N.S. Khrushcheva Moskovskogo gorodskogo tresta Glavnogo upravleniya khlebopekarnoy promyshlennosti RSFSR.
(Bakers and bakeries--Equipment and supplies)

KOSTROMIN, Ye. P.

MAKSIMOV, F.K.; KOSTROMIN, Ye.P.; VOLKOV, M.V.; KRYUKOV, A.M.; SHABANOV, T.D.

Preparation of concrete mix in a mixing and crushing machine. Rats. i izobr.predl. v stroi. no. 75:3-4 '53. (MLRA 7:7)
(Concrete)

KOSTROMINA, A.G.

6(0) PHASE I BOOK EXPLOITATION SOV/2800

USSR. Ministerstvo svyazi. Tekhnicheskoye upravleniye

Novyye razrabotki po organizatsii pochtovoy svyazi; informatsionnyy sbornik (New Developments in the Organization of Postal Communication; Collection of Informational Articles) Moscow, Svyaz'izdat, 1958. 166 p. (Series: Tekhnika svyazi) Errata slip inserted. 8,600 copies printed.

Additional Sponsoring Agency: USSR. Ministerstvo svyazi. Tsentral'nyy nauchno-issledovatel'skiy institut.

Resp. Ed.: A. Ye. Vasenin; Ed.: N.A. Kaz'mina; Tech. Ed.: K. G. Markoch.

PURPOSE: This book is intended for post office workers.

COVERAGE: This collection of articles discusses efforts of the Central Scientific Research Institute of Communications to organize and mechanize work processes in postal service establishments. It describes the organization of postal functions and ways to determine the efficiency of mechanized operations. Some articles discuss future development of the postal service. No personalities are mentioned. There are no references.

Grigor'yev, N. D. Overall Mechanization of Postal Operations	80
Medvedeva, N. N., and A. I. Shatov. Methods of Calculating the Technical and Economic Efficiency of Mechanization Facilities in Postal Service Establishments	100
Abson, V. A. Installation With Several Degrees of Selectivity for Semi-Automatic Sorting of Parcels	120
Barsuk, V. A. Method of Determining the Efficiency of Mechanized Parcel Sorting	130
Kostromina, A. G., and N. D. Nosonovich. System of Organizing and Mechanizing Production Processes for Expediting Periodicals in Large Postal Service Establishments	

AVAILABLE: Library of Congress (HE 6237 .R85)

Card 4/4 JG/mmh 1-6-60

KOSTROMINA, A.P.

Effect of stimulation of the mechanicoreceptors of the gastro-intestinal tract on conditioned and unconditioned salivation in dogs. Report No.1: Effect of stimulation of mechanicoreceptors of the ileocecal region on conditioned salivation responses [with summary in English]. Fiziol.zhur. [Ukr]. 4 no.4:502-509 Jl-Ag '58 (MIRA 11:10)

1. Institut fiziologii im. A.A. Bogomol'tsa AN USSR, laboratoriya vysshey nervnoy deyatel'nosti i nervnoy trofiki.
(INTESTINES--INNERVATION)
(SALIVARY GLANDS)

KOSTROMINA, A.P.

Effect of stimulating gastrointestinal mechano-receptors on conditioned and unconditioned reflex salivation in dogs. Report No.2: Effect of stimulating rectal mechanoreceptors on conditioned reflex salivation. Fiziol. zhur. [Ukr] 5 no.2:163-171 Mr-Ap '59 (MIRA 12:7)

1. Kiyevskiy gosudarstvennyy universitet im. T. G. Shevchenko, kafedra fiziologii zhivotnykh i cheloveka i Institut fiziologii im. A.A. Bogomol'tsa AN USSR, laboratoriya vysshey nervnoy deyatel'nosti i nervnoy trofiki.

(CONDITIONED RESPONSE) (RECTUM--INNERVATION)
(SALIVARY GLANDS)

KOSTROMINA, A.P.

Effect produced by stimulating mechanoreceptors of the gastrointestinal tract on conditioned and unconditioned reflex salivation in dogs. Fiziol. zhur. [Ukr.] 6 no.6:738-744 N-D '60. (MIRA 14:1)

1. Laboratory of Higher Nervous Activity and Trophic Functions of the A.A.Bogomolets Institute of Physiology of the Academy of Sciences of the Ukrainian S.S.R.
(INTESTINES—INNERVATION) (SALIVA)
(REFLEXES)

KOSTROMINA, A.P.

Significance of the functional state of the cerebral cortex in the interaction of exteroceptive conditioned and interoceptive unconditioned reflexes from the intestines. Fiziol. zhur. [Ukr.] 8 no.3:327-331 My-Je '61. (MIRA 15:6)

1. Kafedra fiziologii zhivotnykh i cheloveka Kiyevskogo universiteta im. T.G. Shevchenko i Laboratoriya fiziologii vydelitel'nykh funktsiy Instituta fiziologii im. A.A. Bogomol'tsa AN USSR, Kiyev.

(CEREBRAL CORTEX) (CONDITIONED RESPONSE)
(REFLEXES) (RECTUM—INNERVATION)

KOROSTELEV, V.Ye.; KOVALEVA, N.I.; PROKHOROVA, L.N.; MATKOVSKAYA, Ye.K.; CHERNYSHEVA, N.I.; MATVEYEVA, V.N.; KOSTROMINA, I.N.; SEMINA, N.A.; TELESHEVSKAYA, E.A.

Study of the reaction-producing qualities of the chemically associated vaccine of the Gamaleia Institute of Epidemiology and Microbiology against typhoid fever, parathyphoid fever, and tetanus.. Zhur. mikrobiol.epid.i immun. 33 no.5:121-122 My '62. (MIRA 15:8)

1. Iz Instituta epidemiolgoii i mikrobiologii imeni Gamalei AMN SSSR.
(VACCINES) (TYPHOID FEVER) (PARATYPHOID FEVER) (TETANUS)

PERVOVA, A.K.; KOSTROMINA, K.N.

Method for the preparation of transverse sections of the pelvis for the calculation of the distribution of radiation energy in the female pelvis in radiotherapy of uterine cervix cancer. Med. rad. 9 no.3:19-24 Mr '64. (MIRA 17:12)

1. Kafedra klinicheskoy radiologii (zav. - prof. A.V.Kozlova) TSentral'nogo instituta usovershenstvovaniya vrachey i radiologicheskoye otdeleniye (zav. A.K.Pervova) Gorodskoy klinicheskoy bol'nitsy No.40.

YAKUBOVA, A.I.; KOSTROMINA, M.M.

Treating seeds of Patrinia intermedia Roem. et.Schult. with trace elements before sowing. Trudy TSSBS no.4:55-59 '60. (MIRA 15:4)
(Patrinia) (Plants, Effect of trace elements on)

KOSTROMINA, N. A.

USSR/Chemistry - Organic chemistry

Card 1/1 Pub. 116 - 15/24

Authors : Smirnov-Zamkov, I. V. and Kostromina, N. A.

Title : The reaction of sulfuryl chloride with dimethyl acetylene

Periodical : Ukr. khim. zhur. 21/2, 233-239, 1955

Abstract : The normal, addition and by-products formed during the reaction of dimethyl acetylene (2 moles) with sulfuryl chloride (1 mole) are described. The effect of the physico-chemical conditions and various additions on the reaction process and yield of dichlorotetramethylcyclo butene is analyzed. Experimental data are presented on the induction period of the reaction, effect of radical inhibitors and lighting, as well as on the radical chain mechanism of the reaction. Six references: 4 USSR, 1 USA and 1 German (1912-1952). Table.

Institution : Acad. of Sc., Ukr. SSR, Inst. of Organ. Chem.

Submitted : December 14, 1954

FIALKOV, Ya.A.; KUZ'MENKO, A.A.; KOSTROMINA, N.A.

Physicochemical study of the system: phosphorus pentachloride -- -- tetramethylammonium chloride in acetonitrile solution. Ukr. khim.zhur. 21 no.5:556-560 '55. (MLRA 9:3)

1. Institut obshchey i neorganicheskoy khimii AN USSR.
(Phosphorus chlorides) (Ammonium compounds, Substituted)

SMIRNOV-ZAMKOV, I.V.; KOSTROMINA, N.A.; PISKOVITINA, G.A.

Reducing conversions of 3,4-dichloro-1,2,3,4-tetramethylcyclobutene-1.
Ukr. khim.zhur. 22 no.1:67-69 '56. (MLRA 9:6)

1.Institut organicheskoy khimii AN USSSR.
(Cyclobutene)

AUTHORS: KOSTROMINA, N.A.
Yakubson, S.I. and Kostromina, N.A.

TITLE: I. Polarographic Investigation of Rare-Earth Elements and Their Systems with Certain Complex-Forming Substances. (I. Polyarograficheskie Issledovaniya Soley Redkozemel'nykh Elementov i ikh Sistem s Nekotorymi Kompleksoobrazovatelyami). 570

PERIODICAL: "Zhurnal Neorganicheskoy Khimii" (Journal of Inorganic Chemistry, Vol.II, No.2, pp.349-354. (U.S.S.R.). 1957

ABSTRACT: There are considerable ambiguities in the results of polarographic studies of rare-earth elements with the exception of Eu. The aim of the present work was to see whether the method was applicable to complex-formation investigations for these elements. A visual polarographic set-up was used. Solution of the chlorides of La, Nd, Ce and Sm and Nd sulphate in aqueous solutions without a background and on a tetramethylammonium-iodide background were used: no reaction between these salts and the inert electrolyte was observed. A clear wave, corresponding to reduction according to $M^{3+} + e \rightarrow M^{2+}$ was found for the solutions studied, but there were no signs of one corresponding to reduction to the metallic state. Proportionality between the wave height and the rare-earth ion concentration in the solution was observed. On adding complex-forming substances (citrate and tartrates) to Nd or Ce salts the wave of the simple cation disappears without the appearance of the complex-ion wave.

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I. Polarographic Investigation of Rare-Earth Elements and Their Systems with Certain Complex-Forming Substances. (Cont.)

There are 13 references, 2 of them Russian.

There are 6 figures and 1 table.

Institute of Inorganic Chemistry of the Academy of Sciences of the Ukrainian S.S.R., Complex-Compound Laboratory.

Received 1 November, 1956.

Card 2/2

AUTHORS: Yakubson, S.I., Kostromina, N.A. SOV/ 78-3-7-38/44

TITLE: The Electric Conductivity of the Solutions of Chlorides and Sulfates of Lanthanum and Cerium With Hydrochloric Acid and Sulfuric Acid (Elektroprovodnost' rastvorov khloridov i sul'fatov lantana i tseriya s solyanoy i sernoy kislotami)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 7, pp 1688-1693 (USSR)

ABSTRACT: The electric conductivity of the isomolar solutions of the ternary systems $CeCl_3$-HCl-H_2O, $LaCl_3$-HCl-H_2O, $Ce_2(SO_4)_3$-H_2SO_4-H_2O and $La_2(SO_4)_3$-H_2SO_4-H_2O was investigated with the result that complex compounds were found to exist in the solutions in which the ratio metal salt : acid residue is 1 : 1. The following complex ions probably exist in the solutions: MCl_4^- and $[M(SO_4)_2]^-$. It is probable that besides complexes with a ratio of 1 : 1 also other complex ions occur in the solutions. In order to explain the influence exercised by the solvent upon the forming of complexes in the above mentioned systems the determination of the specific electric conductivity of $CeCl_3$-HCl in ethyl alcohol

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The Electric Conductivity of the Solutions of Chlorides and Sulfates of Lanthanum and Cerium With Hydrochloric Acid and Sulfuric Acid SOV/ 78-3-7-38/44

were investigated. The maximum deviation of electric conductivity at 25°C is found with a ratio of $CeCl_3$:HCl = 3 : 2. It may be seen that the solution contains several kinds of complex ions which are in a state of equilibrium. There are 6 figures, 1 table and 16 references, 6 of which are Soviet.

SUBMITTED: July 26, 1957

1. Complex compounds--Electrical properties 2. Complex compounds --Analysis 3. Complex ions--Theory 4. Complex ions--Properties

Card 2/2

AUTHORS: Kostromina, N. A., Yakubson, S. I. SOV/78-3-11-14/23

TITLE: II. Polarographic Investigation of the Salts of the Rare Earths and Their Systems With Some Complexes (II. Polyarograficheskiye issledovaniya soley redkozemel'nykh elementov i ikh sistem s nekotorymi kompleksoobrazovatelyami)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 11, pp 2506-2511 (USSR)

ABSTRACT: The formation process of complex salts of the rare earths in aqueous solutions is investigated by means of polarographic methods, above all of the not especially stable complex salts. An ytterbium chloride solution with 0,1 N-tetramethyl ammonium iodide was investigated polarographically. The half wave potential does not change with an increase in concentration from 1 to 4 mmol/l. Two stages occur at concentrations of 1 - 2 mmol/l. Salts of cerium and lanthanum in aqueous solutions were investigated and it was found that the half wave potential is displaced towards the negative values with an increase in acidity of the solution. A polarogram was plotted for the system $LaCl_3$-HCl-H_2O. A half wave potential of -1,79V occurs

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II. Polarographic Investigation of the Salts of the Rare Earths and Their Systems With Some Complexes

in a neutral solution of lanthanum chloride. Similar investigations were also carried out with the system $CeCl_3$-HCl-H_2O.

The polarograms with solutions of lanthanum sulfate and cerium sulfate were plotted as well; the results show that the half wave potential is displaced towards the negative values. The half wave potentials of the solutions investigated are given in table 3. The data and polarograms show that a displacement of the half wave potential towards the negative values occurs with all salts investigated. If an acid is added, this fact is explained by the formation of complexes between the salts of the rare earths and the corresponding acids. Polarographic investigations were also carried out with the system ytterbium chloride and the salts of organic acids, above all of lactate, glyconate, citrate, and tartrate. In the case of an equimolar ratio of the components in the solution the wave of the ytterbium ion vanishes and the wave of the complex ion occurs. Cation complexes with the general formula $[YbA]^{n+}$ (A = lactate-, glyconate-, citrate-, and tartrate anion) are formed at these concentrations. If an excess of complex formers is added, the

II. Polarographic Investigation of the Salts of the Rare Earths and Their Systems With Some Complexes

wave is displaced towards the negative values. For trivalent ytterbium with lactate- and glyconate ion a complex is formed in the case of a great excess of complex formers, which has the general formula $\left[Yb^{III}A_6\right]^{n-}$. Bivalent ytterbium with equal anions forms the complex $\left[Yb^{II}A_4\right]^{m-}$.

There are 5 figures, 4 tables, and 4 references, 2 of which are Soviet.

SUBMITTED: October 2, 1957

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5(2) SOV/78-4-7-9/44

AUTHORS: Fialkov, Ya. A. (Deceased), Kostromina, N. A.

TITLE: Complex Compounds of Lanthanum With Gluconic Acid (Kompleksnyye soyedineniya lantana s glyukonovoy kislotoy)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 7, pp 1507-1516 (USSR)

ABSTRACT: Gluconic acid $CH_2(CHOH)_4COOH$ forms stable complexes with the bi- and trivalent ions of numerous metals. In the present paper, the complex formation in the system $LaCl_3$ - HGH_4 - H_2O is investigated in dependence on the pH value on the ratio of the components and on the concentration (HGH_4 = gluconic acid, H_4 are the hydrogens of the oxy groups). The investigation was carried out by measuring the electric conductivity, by potentiometrical determination of the pH value, ion transmission, determination of optical rotation, and by producing the preparations in pure condition. The occurrence of complex formation and the qualitative stability of complexes in media with different pH values was tested by means of suitable precipitants. Electric conductivity and pH were measured in the system

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Complex Compounds of Lanthanum With Gluconic Acid

$LaCl_3$ - $NaGH_4$ - H_2O in the case of a constant $LaCl_3$ content and an increasing addition of sodium gluconate. Measuring results are shown by figure 1. As may be seen from figure 2, the constant pH value is attained in potentiometric titration only after 30 minutes. This may be explained by the fact that the γ- and σ-lactones are forced open only after some time by the addition of alkali. Figure 3 shows the potentiometric titration curves for $LaCl_3$ and for mixtures of $LaCl_3$ with HGH_4 in the ratios of 1 : 0.5, 1 : 2 and 1 : 3. The first potential jump corresponds to the neutralization of the hydrogen of the carboxyl group. The following slow increase of the pH value is explained by the titration of the hydrogen of the oxy groups, which is split off in complex formation. On the basis of potentiometric measurements the following complexes are assumed: During the mixing of $LaCl_3$ with HGH_4 a cation is formed with the separation of carboxyl hydrogen: $La(GH_4)^{2+}$ (I); after the addition of an equivalent NaOH, the hydrogen of the α-OH-group is split off: $LaGH_3^+$ (II); after a further addition, the

Complex Compounds of Lanthanum With Gluconic Acid

neutral complex $LaGH_2^0$ (III) is formed with a splitting-off of the hydrogen of the α-OH-group. The ranges within which the complexes II and III exist overlap. With pH >10 splitting off of the hydrogen of the σ-OH-group may occur with the formation of the complex anion $LaGH^-$ (IV). Measurements of electric conductivity confirm (Fig 5) the potentiometrically found connections as well as the qualitative tests of the ion transition at pH-values corresponding to the forming of complexes I - IV. In the polarometric investigation the angle of rotation of d(-)-gluconic acid was measured alone as well as mixed with $LaCl_3$ within the pH-range of 1.5-12.3 (Figs 6,7). The measurements confirm the existence of the complexes mentioned. At pH = 12.3 the anion complex IV goes over into a complex containing more than one addend of gluconic acid per one molecule of $LaCl_3$. Table 1 gives the complex compounds formed and the data of their analysis. Formulas are given for the structure of the complexes in the case of different pH values. There are 8 figures, 1 table, and 6 references, 3 of which are Soviet.

Complex Compounds of Lanthanum With Gluconic Acid SOV/78-4-7-9/44

ASSOCIATION: Institut obshchey i neorganicheskoy khimii Akademii nauk USSR (Institute of General and Inorganic Chemistry of the Academy of Sciences, UkrSSR)

SUBMITTED: April 20, 1958

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KOSTENKO, N. A., Cand Chem Sci -- (diss) "Complex compounds of the rare-earth elements with gluconic acid," Kiev, 1960, 15 pp, 150 cop. (Kiev State U im T. G. Shevchenko) (KL, 45-60, 122)

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~~5 (2)~~

68112
SOV/78-5-1-17/45

AUTHOR: Kostromina, N. A.

TITLE: Complex Compounds of Cerium, Neodymium, and Samarium With Gluconic Acid

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 1, pp 95 - 101 (USSR)

ABSTRACT: In reference 1, the author reported on complex compounds of lanthanum with gluconic acid, and here continues his investigations on other rare earths by the same method. The electrical conductivity was measured on systems of chlorides of Ce, Nd, and Sm, and gluconic acid in water (Fig 1), the solutions were titrated potentiometrically (Figs 2-5) and conductometrically (Fig 6), the ion transport was investigated and the change of the optical rotation angle of gluconic acid after addition of $NdCl_3$ was measured (Figs 7,8). The separated complex compounds of Nd were analyzed and their molecular electrical conductivity as well as their molecular weight were determined (Table). The author reaches the conclusion that Ce, Nd, and Sm behave with gluconic acid in much the same manner as La. In a component

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ratio 1 : 1 they form the equimolecular gluconate complexes, which are transformed from cations to anions with rising pH after the following scheme:

$[MeGH_4]^{2+} \longrightarrow [MeGH_3]^{+} \longrightarrow [MeGH_2]^{0} \longrightarrow [MeGH]^{-}$ (Me = Ce, Nd, Sm, HGH_4 = gluconic acid). With increasing concentration of gluconic acid, complexes are formed in acid and weakly acid medium, which contain up to 6 acid molecules:

$[MeGH_4]^{2+} \longrightarrow [Me(GH_4)_2]^{+} \longrightarrow Me(GH_4)_3 \longrightarrow [Me(GH_4)_6]^{3-}$.

Structure formulas are suggested for the complexes of the composition 1 : 1 and 1 : 2. The pH value in which the complex formation occurs, drops from the lanthanum compounds to the samarium compounds in the order La - Ce - Nd - Sm in consequence of rising stability of the complex compounds. The analyses shown in the table concerning the neodymium complexes deviate partially from the composition calculated after the formulas, as the regions of formation of the individual complexes

Complex Compounds of Cerium, Neodymium, and Samarium With Gluconic Acid

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reach into one another. There are 8 figures, 1 table, and 1 Soviet reference.

SUBMITTED: July 20, 1958

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S/073/60/026/001/001/021
B004/B054

AUTHOR: Kostromina, N. A.

TITLE: Complex Compounds of Gadolinium, Yttrium, and Ytterbium With Gluconic Acid

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No 1, pp. 3-9

TEXT: The author reports on studies of the gluconates of gadolinium, yttrium, and ytterbium by potentiometric and conductometric methods, and on respective analyses. Investigation methods and production of gluconic acid and metal chlorides (MCl_3) had been described earlier (Ref. 1). Potentiometric and conductometric titration was conducted at an MCl_3 concentration of 0.005 moles/l, and a NaOH concentration of 0.1 moles/l. Fig. 1 shows the potentiometric titration curves for gluconic acid (HGH_4), MCl_3, and an equimolar mixture of MCl_3 and HGH_4. The potential jump on addition of 0.6-0.7 equivalents of NaOH is explained by neutralization of

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the hydrogen of the carboxyl group: $M^{3+} + HGH_4 \rightleftharpoons MGH_4^{2+} + H^+$ (1). On addition of the second and third equivalent of NaOH, hydroxyl ions are bound and complex formation sets in. Conductometric titration confirmed the potentiometric results: a) decrease in conductivity on addition of the first NaOH equivalent by neutralization of the carboxyl group; b) constant value of conductivity between ~0.7-3.0 NaOH equivalents due to the binding of hydroxyl ions and formation of an electroneutral complex. On addition of the fourth NaOH equivalent, conductivity increases due to formation of an anion complex. The conductometric data did, however, not reveal according to what equations the complex formation proceeds. Potentiometric and conductometric titration at a ratio of $MCl_3 : HGH_4 = 1 : 2$ resulted in a formation of complexes with the component ratio 1:2. By analysis of the isolated yttrium complexes, the following compounds were found:

Formula	pH of precipitation	MCl_3:HGH_4	molecular conductivity of a 0.001 mole solution, $ohm^{-1}.cm^{-1}$
$[Y(GH_4)]Cl_2$	~2	1 : 2	30
$[Y(GH_4)_2]Cl$	~2	1 : 3	

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Formula	pH of precipitation	$MCl_3:HGH_4$	molecular conductivity of a 0.001 mole solution, $ohm^{-1}.cm^{-1}$
$[Y(GH_4)_2]Cl$	~4	1:1, 1:2	138
YGH_2	~3	1 : 1	
$Na[Y(GH_3)_2]$	~12	1 : 3	127
$Y(GH_4)_3$	~4	1 : 4	103.7
$Na_3[Y(GH_4)_6]$	~4	1 : 20	450

Therefrom, the following reactions were derived: $M^{3+} + 2HGH_4 \rightleftharpoons [M(GH_4)_2]^+ + 2H^+$ (6); $[M(GH_4)(GH_3)]^0 + OH^- \rightleftharpoons [M(GH_3)_2]^- + H_2O$ (8). A comparison of optical rotation with the potentiometric titration curve for an equimolar mixture of HGH_4 and YCl_3 (Fig. 5) showed that on addition of the second and third NaOH equivalent a ring is formed, with the hydrogen of the alcohol groups being separated. A measurement of optical rotation with more than two NaOH equivalents is rendered difficult by turbidity of the solution

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Complex Compounds of Gadolinium, Yttrium, and Ytterbium With Gluconic Acid

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due to precipitation of the neutral MGH_2 complex. Structural formulas are suggested for the complexes $M(GH_4)^{2+}$, MGH_2^0, $[M(GH_4)_2]^+$, $[M(GH_4)(GH_3)]^0$, and $[M(GH_3)_2]^-$. This study was conducted on a suggestion by Ya. A. Fialkov, Corresponding Member AS UkrSSR. There are 5 figures, 1 table, and 3 references: 2 Soviet and 1 US.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN USSR (Institute of General and Inorganic Chemistry of the AS UkrSSR)

SUBMITTED: June 24, 1959

Legend to Fig. 1: Potentiometric titration curves for the gluconic acid of $GdCl_3$: 1, YCl_3: 2, $YbCl_3$: 3, and for equimolar mixtures of gluconic acid with $GdCl_3$: 1', YCl_3: 2', and $YbCl_3$: 3'

Legend to Fig. 5: Dependence of the optical rotation $\alpha_p^{20°C}$ of an equimolar

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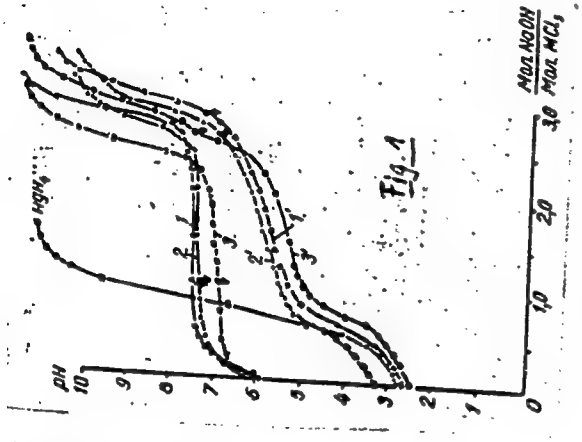
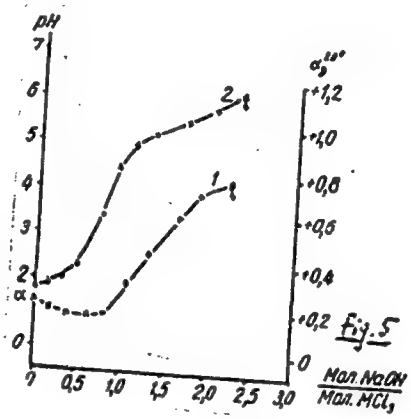
Complex Compounds of Gadolinium, Yttrium, and Ytterbium With Gluconic Acid

S/073/60/026/001/001/021
B004/B054

mixture of HGH_4 with YCl_3 on the amount of NaOH added: curve 1; curve of potentiometric titration (pH) of an equimolar mixture of HGH_4 with YCl_3: 2.





Card 5/5

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S/073/60/026/003/005/011/XX
B023/B060

AUTHOR: Kostromina, N. A.

TITLE: Competitive Stability of the Gluconate Complexes of Rare Earths

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 3, pp. 299-304

TEXT: The author calculated the instability constants of the cation complexes MGH_4^{2+} for La, Ce, Nd, Sm, Gd, Y, and Yb on the basis of data concerning the potentiometric titration. The constants are near or equal to $(1.5\text{-}2.6)\cdot10^{-3}$ for all rare earths investigated (Table 1). The author further calculated the equilibrium constants of complexes MGH_3^{+} for La, Nd, Sm, Gd, and Y. The equilibrium constants are equal to $(0.5\text{-}3.3)\cdot10^{-4}$. The durability of the complexes increases inconsiderably from La to Sm and drops from Sm to Y. Ytterbium does not give rise to complexes of this type. The author finally calculated equilibrium constants of complexes MGH_2^{o} for La, Nd, Sm, Gd, Y, and Yb (Table 2). The constants vary from

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Competitive Stability of the Gluconate Complexes of Rare Earths

S/073/60/026/003/005/011/XX
B023/B060

$0.5 \cdot 10^{-11}$ for lanthanum to $0.89 \cdot 10^{-8}$ for ytterbium. The durability of the complexes rises 1600 times in the series La ⟶ Yb. Table 1 shows the amount of equivalents of added alkali per mole of metal, pH of the solutions, and the instability constants calculated. Table 3 shows the equilibrium constants of reaction $M^{3+} + GH_4^- \rightleftharpoons MGH_3^+ + H^+$ (7). Fig. p. 303 illustrates the distribution of La and Nd between the complexes MGH_3^+ (-•-) and MGH_2^o (-x-) as a function of the pH of the solution. It may be seen therefrom that for pH 6.8 there is 80% lanthanum in form of cations, and 90% neodymium is bound to an electrically neutral complex. This distribution is very favorable for the decomposition of the complex at the cationite with gluconic acid. In the author's opinion, the decomposition ought to be best in the range of formation of electrically neutral complexes. There are 1 figure, 3 tables, and 5 references: 3 Soviet and 1 US.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii AN USSR (Institute of General and Inorganic Chemistry of the AS UkrSSR)

SUBMITTED: June 24, 1959

KOSTROMINA, N.A.

Physicochemical analysis of systems of certain rare-earth elements with gluconic acid in aqueous solutions. Dop. AN URSR no.9:1182-1186 '61. (MIRA 14:11)

1. Institut obshchey i neorganicheskoy khimii AN USSR. Predstvaleno akademikom AN USSR A.K.Babko.
(Rare earth metals)
(Gluconic acid)

L 13361-63 EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3 RM/JD/JG

ACCESSION NR: AT3002326 S/2928/62/000/003/0118/0135

AUTHOR: Kostromina, N. A.

TITLE: Complex compounds of rare-earth elements with gluconic acid.

SOURCE: AN UkrRSR. Instytut zahal'noyi ta neorhanichnoyi khimiyi. Raboty po ihimii rastvorov i kompleksnykh soyedinedly, no. 3, 1962. Khimiya rastvorov redkozemel'nykh elementov, 118-135

TOPIC TAGS: gluconate, gluconic acid, rare-earth gluconate, chelate, Fe, Cr, Sb.

ABSTRACT: The rare-earth metals form a large variety of complexes with gluconic acid, as seen from the figure in the enclosure. HGH_4 represents gluconic acid, GH_4 is the single-charged gluconic acid radical and the H_4 are the hydrogen ions of the alcohol groups. The large number of gluconate radicals (up to 6) can be attached to the rare earth metals because in the acid range chelates are not formed; the number of single-charged ligands which combines with the metal is determined by the charge and radius of the metal. The complexes formed in the acid range (metal to carboxylic oxygen bond) are less stable than chelate complexes formed in neutral and alkaline solutions, hence in the latter range the equilibrium shifts toward chelate formation and the number of ligands in the complexes is

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L 13361-63

ACCESSION NR: AT3002326

decreased to 8 since then each ligand occupies several coordination places. Divalent metal complexes would have fewer ligands than the rare-earth metal complexes because of lesser charge of the metal, and trivalent metals whose ions have incomplete (Fe, Cr) or 18 electron (Sb) outer shells form chelates in acid solutions, so they too would not combine with more than 2 gluconate radicals. Orig. art. has: 4 tables, 9 figures, 7 formulas and 18 equations.

ASSOCIATION: none.

SUBMITTED: 00 DATE ACQ: 25May63 ENCL: 01

SUB CODE: CH, EL NO REF SOV: 009 OTHER: 032

Card 2/2

L 13362-63 EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3 RM/JD/JG

ACCESSION NR: AT3002327 S/2929/62/000/003/0136/0147

AUTHOR: Kostromina, N. A.

TITLE: Separation of rare-earth elements by ion-exchange chromatographic method

SOURCE: AN UkrRSR. Instytut zahal'noyi ta neorhanichnoyi khimiyi. Raboty po khimii rastvorov i kompleksnykh soyedineniy, no. 3, 1962. Khimiya rastvorov redkozemel'nykh elementov, 136-147

TOPIC TAGS: rare-earth element, ion exchange, chromatography, La, Lu, EDTA, resin, Fe, Cu, oxyacid, "retentive" ion

ABSTRACT: The ability to separate rare-earth elements is chromatographically explained by the decrease in adsorption of rare-earth element ions on the cationite and by a simultaneous increase in complex formation in the series from La to Lu. The complex formation appears the more determining, but for good separation there should be competition for the rare-earth element by both the complexing eluent and the ion exchange resin. Thus in a rare earth element - eluent system where highly stable complexes are formed (e.g. with EDTA), the rare earth element separation is poor regardless of the sharp increase in the constants in the rare-earth element series. Eluent pH and

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L 13362-63

ACCESSION NR: AT3002327

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concentration largely determine composition and structure of the complex formed; these factors and the changing stability of a complex in the rare earth element series must be known to select most favorable separation conditions (where complexes of different composition are formed). Where very stable complexes are formed, separation may be improved by use of "retentive" ions (resin in the Fe or Cu form) which help form less stable complexes (e.g. cationic or electrically neutral rare earth elements-EDTA complexes) providing for better competition for rare earth element ion between resin and complex. Best method of separating large amounts of rare earth element requires selection of a "retentive" ion to be used with eluents normally forming very stable complexes, with the stability constant increasing rapidly in the rare earth element series. These conclusions were drawn from a study of data on the separation of rare-earth elements with oxyacids (citric, lactic, glycolic, Alpha-oxyisolbutyric and tartaric) and with aminoacids (hydrazinodiacetic, aminoacetic, nitrilotriacetic, o-carboxyanilinodiacetic and EDTA), and the formation of the various resultant complexes. Orig. art. has: 5 equations

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 25May63 ENCL: 00

SUB CODE: CH, NS NO REF SOV: 015 OTHER: 055

Card 2/2

KOSTROMINA, N.A.

Complex formation of lanthanum with gluconic acid by the ion exchange method. Zhur.neorg.khim. 7 no.7:1559-1564 Jl '62. (MIRA 16:3)
(Nanthanum compounds) (Gluconic acid) (Ion exchange)